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6 March 1963

MEMORANDUM FOR: Assistant for Plans and Development

SUBJECT : Trip Report

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On 25 and 26 February 1963, the undersigned visited [redacted] in El Segundo, California, to review the MIC/I (Multiple Image Correlator) test and evaluation program, the MIC/II Study program and the Image Point Selector (Cookie Cutter). 25X1A

1. The MIC/I program is progressing in a very satisfactory manner. Some VELA materials were made available from [redacted] and negative materials from several ground camera systems were delivered to be incorporated in this program. Present evaluation of this instrument indicates that the maximum gain in the image quality is obtained from an input system which is grain limited rather than optics limited. If, for example, the detail in a single negative has not been recorded as a result of the resolution capability of the optical system involved, that detail exhibits very little, if any, enhancement by using the integration technique. On the other hand, if the detail has been recorded but is not discerned due to the limitations of grain size, the multiple image correlator technique will exhibit a remarkable gain or enhancement of the imagery.

2. The MIC/II. The design study for the MIC/II will concern itself primarily with those human factors making for ease of operation. At the present time high resolution zoom optics are being considered having a magnification range continuously variable from 25 to 50X. The 8 separate stages will have motorized motions in X, Y, Ø, tip and tilt. Some small amount of rectification on the order of $\pm 2\frac{1}{2}$° is being considered. This rather limited rectification is occasioned by the depth of field limitations. A further consideration is being made to accommodate roll film rather than cut film chips. The rolls would be very limited in diameter accommodating possibly not more than 1 or 2 negative frames. At some time approximately mid-wey in this study program, FMA intends to submit a proposal to fabricate the MIC/II. There has been considerable interest within the community on the MIC/I instrument.

3. In addition to items 1 and 2 above, several other items of possible interest to NPIC were discussed.

a. A zoom enlarger

b. A contact printer for generating multiple copies simultaneously.

c. The plastic fluid gate.

d. A systems concept which will be designated PREPS (Photo Reconnaissance Exposure and Printing System). This systems concept would include some available items and would propose to develop the missing items in a continuous concept of original negative processing, immediate edit and titling, exposure printing programming, cleaning and coating, multiple printing and processing of the second generation materials.

25X1A e. Electronic Viewer. In response to the form letter distributed by NPIC, [redacted] intends to send two representatives to the 1 April Bidder's conference.

25X1A 25X1A On 27 and 28 February and 1 March, the undersigned visited [redacted] California, to review the engineering drawings for the HTA/5 film processor and to make the final in plant inspection of the Image Enhancement Device, Contract Number [redacted] 1. The engineering drawings for the HTA/5 processor are nearing completion. Information regarding the maximum diameter spools as well as the details regarding the core diameters various widths and flan thicknesses must be furnished immediately to 25X1A [redacted] in order that the design of the front and rear film console can be completed. This information has not been furnished in the past due to the security aspects of these film spool sizes. It is now necessary and imperative that this information be furnished. 25X1A

Final inspection of the Image Enhancer was completed on 1 March 1963. The prototype instrument which had previously been inspected as a breadboard equipment has now been placed in the final console and was fully operational. Several samples of the output materials are attached. The output materials were examined very carefully by the contract monitor. Although there is some contrast enhancement and area scan filtering, the imagery is so badly degraded by the smear effect of the CRT scan that the imagery is not usable. The spot size of the CRT is the limiting factor together with the triggering mechanism which does not perfectly 25X1A align the scan lines. A meeting was called by the contract monitor with Mr. 25X1A [redacted] to discuss this rejection action. [redacted] was of the opinion that much useful information had been gained during this pro- 25X1A [redacted] but that further improvement of the present device could not be bought with additional time and money and that the contract should be terminated. [redacted] 25X1A was in complete agreement with this suggestion. It is the opinion of the contract monitor that the time and money expended on this program was well spent 25X1A and that [redacted] personnel directly responsible for the program conscientiously exploited all means at their disposal to fulfill the terms of the contract and that the failure to accomplish these design objectives is a forthright and honest failure. It is recommended by the contract monitor that this contract be terminated and that further investigation of image enhancement utilizing the [redacted] 25X1A equipment in part should be investigated. It is further recommended that [redacted] be requested to temporarily store this equipment 25X1A in their facility pending a final decision and disposition.

In addition to the above 2 items, the following items of possible interest to NPIC were discussed in depth.

a. Equal Energy Spectral Sensitometer and radiometer.

b. A high resolution step and repeat printer.

c. The Electronic Viewer

d. Cut sheet film processor and dryer.

e. SPPL Film processor and Data Monitor.

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[redacted]

Development Branch, P&DS